

# Adhesion Connection

a semestrial update from the society



The Adhesion Society

2021 EDITION

## Letter from the President

Dear Adhesion Society Members,

I can hardly believe that it has been over six months since the Adhesion Society Annual Meeting and how incredible, in so many ways, this past year has been for our Society and the world. As you know, the Annual Meeting was held in a virtual format for the first time ever due to the ongoing pandemic. I am certainly biased, however, I believe that the Adhesion Society meeting was by far the best virtual conference I attended last year! This is due to the tireless efforts of the 2021 Program Co-Chairs Michelle Seitz and Niels Holten-Andersen and Home Office Manager Malinda Armstrong, along with the entire Executive Committee, Division Chairs, session organizers, and countless Society members that dedicated their time! I fully enjoyed all of the phenomenal lectures, award sessions, posters, and, of course, the great discussions that accompanied the whole week.

Building upon this success, I know that the 2022 Program Co-Chairs Niels Holten-Andersen, Amy Peterson, and Michael Bortner have been working hard to organize another great Annual Meeting in 2022. We are excited to be planning for an in-person event to be held February 20-23, 2022 in San Diego, CA, USA. In addition to numerous sessions covering the forefront of research and development in adhesion science and engineering, we are looking forward to celebrating the 2022 Award Winners. **Professor Bo Persson will receive the Excellence in Adhesion Science Award sponsored by 3M. Professor Chelsea Davis will receive the Early Career Adhesion Scientist Award sponsored by the ASC, and Dr. Dohgyu Hwang will be recognized for the 2021 Distinguished Paper Award sponsored by Henkel.** All of these are so well deserved, and I look forward to celebrating each of them in a few months! Along with the in-person event, we are also planning a few virtual events that will help to bring together our Society members (old and new), who will not be able to attend in-person next year. Please be on the lookout for more details regarding the program and abstract submission, and feel free to reach out to us if you would like to be involved in helping to plan the event.

Beyond the upcoming Annual Meeting plans, I am also so proud of the incredible work that the Executive Committee and many member volunteers have been doing over the past six months. Thanks to the leadership of Malinda Armstrong, we have been working through the transition to a new website and database platform. We have integrated much of the feedback that we have received over the past several years, and we're excited to have this platform to serve as a central hub for the Adhesion Society beginning this August! I also want to thank the Honorifics Committee and the Short Course Committee for their dedication, service and outstanding work that reflects the vision and mission of the Society. We also have announced the call for applications for two new chair positions: the Sustainability Chair and the Diversity, Equity, and Inclusion Chair. If you are interested in applying for either position, please reach out to me. Finally, I am looking forward to the upcoming elections for new Executive Committee



**Al Crosby, President**  
(UMass Amherst)

### EXECUTIVE COMMITTEE

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#### **BIOADHESION**

#### **DIVISION CHAIR**

**Jayant Joshi**

Hollister Incorporated

#### **STRUCTURAL ADHESIVES**

#### **DIVISION CHAIR & VICE CHAIR**

**Ajay Krishnamurthy** – National

Institute of Standards and Technology

#### **SOFT ADHESIVES DIVISION CHAIR**

**Daniel King**

Hokkaido University

### THE ADHESION SOCIETY INC.

510 King Street, Suite 418

Alexandria, VA 22314

Phone: (301) 986-9700, x1106

Fax: (301) 986-9795

Email: [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org)

Queries can be sent to Malinda Armstrong, the Adhesion Society Home Office Manager at [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org).

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members. Vice-President Joelle Frechette is leading the election effort, and this process always reminds me of the amazing community of members that we have in this Society. Without your hard work and dedication, we would not be able to have the impact that we have. Thank you.

In closing, I hope that each of you are reaching goals and objectives that you have set this year, while also relaxing and reflecting on the impact that your work has had on the Society and

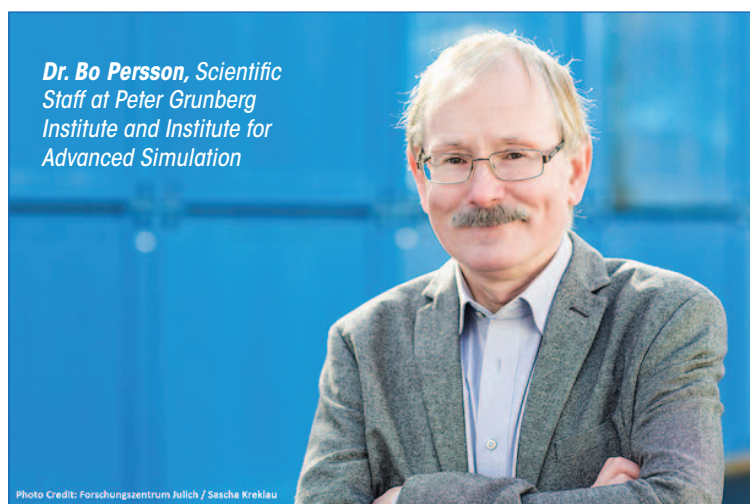
the broader community. I wish you all the best in the closing months of 2021 and look forward to seeing you at the Adhesion Society meeting in 2022!

Al Crosby

*President, Adhesion Society*

*Professor, Polymer Science & Engineering  
UMass Amherst*

## 3M Award for Excellence in Adhesion Science Presented to Dr. Bo Persson



It is our great pleasure to announce Dr. Bo Persson of Forschungszentrum Julich as the 2022 recipient of the Award for Excellence in Adhesion Science sponsored by 3M. Dr. Persson, currently Scientific Staff at Peter Grunberg Institute and Institute for Advanced Simulation, is being recognized for his exceptional contributions to the understanding of the role of roughness on adhesion, friction, and contact mechanics.

Bo's work has significantly elevated our understanding across many fields spanning those of tribology, adhesion, and dynamical processes on surfaces. He created theoretical explanations for how it is possible to observe dipole forbidden variations of molecules absorbed on conducting surfaces. Dr. Persson was one of the first to describe the basic physics involved in gecko adhesion and the role of hierarchical structure and fiber bundling on the adhesive properties of this system. His work in tribology to describe the influence of surface roughness on contact mechanics for dry or lubricated, stationary or sliding contacts resulted in a novel contact mechanics theory that has had extraordinary impact in the field. This foundational work has so aided and influenced the following generations of scientists in this field that it is universally referred to as the Persson contact mechanics theory.

The hallmark of Bo's versatility as a theorist is also reflected on how he applies his models to explain results in various fields. He has published numerous, well received papers and is a highly cited researcher in this area. The significant influence of his theoretical work stands on its own and yet he has a knack for explaining his theory in a manner that is highly accessible to experimentalist and developer alike. In turn, his contributions have directly benefited industry through the use of his models and theory, as for example, to predict tire friction and the connection between dissipation and friction.

Bo obtained his Ph.D. in Mathematical Physics from Chalmers University of Technology before joining Forschungszentrum Julich. At different periods in his nearly forty-two years at Julich he has also held appointments at IBM research centers in both New York and Zurich. During his career, Dr. Persson has guided and influenced a host of students during their PhD studies at the institute, as well as fostered numerous, long-standing collaborations around the world. The support and recommendation returning from these collaborators speaks volumes on the impact that Bo has had in their own research and career success.

Dr. Bo Persson's scientific impact, expertise, dedication, and influence is truly remarkable. He is admired and respected by many world-wide, and he is extremely deserving of the 2022 Award for Excellence in Adhesion Science.



**Jason Clapper, Chair, Award for Excellence in Adhesion Science Committee (3M)**

### Award for Excellence in Adhesion Science Committee Chair

#### **Jason Clapper, 3M**

*Jason Clapper is a Staff Scientist in the Corporate Research Materials Laboratory of 3M where he has spent much of his career working on the development of new technology in areas of soft materials and adhesives.*



## From the 2022 Program Chairs

Next year's meeting is primarily an in-person meeting that will be held in San Diego, CA. We are also planning a half-day virtual event that will include invited talks/panels, a virtual poster session, and networking. The intent is to provide an opportunity for people to get together virtually and discuss adhesion science, both as a supplement to the Annual Meeting and as a way for people to stay involved in the community virtually. More details will be forthcoming.

The technical program will run from February 20 to February 23, 2022. The meeting will include sessions from our three foundational Divisions: Structural Adhesives, Soft Adhesives and Bioadhesion. Sessions covering a breadth of adhesion science including:

### Structural Adhesives

- Fracture Mechanics of Structural Adhesives and Composites
- Adhesion and Fracture in Extreme Conditions

### Soft Adhesives

- Elasticity, Capillarity, Wetting
- PSAs and Viscoelasticity
- Soft Tribology
- Fracture - Soft
- Contact Mechanics
- Soft Technologies
- Gels, Elastomers, and Hybrids
- Reversible, Smart, or Switchable Adhesives

### Joint topics in Soft and Structural Adhesives

- Formulation, Processing and Surface Preparation for Adhesion
- Transportation

### Bioadhesion

- Organismal, Biomedical, Bioinspired Adhesion
- Cell/Virus Adhesion and Mechanobiology
- Underwater Adhesives and Testing
- Biomedical Adhesives
- Interfacial Properties
- Bioadhesion and Sustainability

### Joint topics in Structural, Soft and Bioadhesion

- Sustainable Adhesives
- Novel Chemistries
- Challenges in 3D-Printed Adhesives
- Novel Tools and Methods for Characterization
- Machine Learning

### Joint topics in Soft and Bioadhesion

- Active Matter
- Ice, Insects, Marine, and Other Contamination

Please send an email to Neils Holten-Andersen (nih221@lehigh.edu), Amy Peterson (Amy\_Peterson@uml.edu) or Michael Bortner (mbortner@vt.edu) if you have any questions regarding the meeting next year.

### 2022 Program Chair

#### **Niels Holten-Andersen, Lehigh University**

*Niels Holten-Andersen is a professor in the Departments of BioEngineering and Materials Science & Engineering at Lehigh University. His research group studies bioinspired soft materials, in particular how to utilize microscopic crosslink dynamics to control macroscopic material mechanics.*

### 2022 Program Co-Chair

#### **Amy Peterson, University of Massachusetts Lowell**

*Amy Peterson is an Associate Professor of Plastics Engineering at University of Massachusetts Lowell. Her research group studies processing-structure-property relationships in polymers and polymer composites, with a focus on interfacial phenomena in multilayered systems. She received a PhD in Chemical Engineering from Drexel University in 2011. Before joining the University of Massachusetts Lowell in 2018, she was an Alexander von Humboldt Postdoctoral Fellow while at the Max Planck Institute of Colloids and Interfaces 2011-2013 and an Assistant Professor of Chemical Engineering at Worcester Polytechnic Institute 2013-2018.*

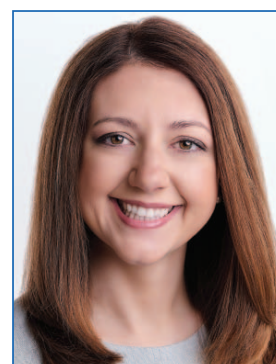
### 2022 Program Co-Chair

#### **Michael Bortner, Virginia Polytechnic Institute and State University**

*Michael J. Bortner is associate professor in the Department of Chemical Engineering at Virginia Tech with a decade of industry experience prior to his academic position. His research efforts are focused on process-structure-property relationships in polymer and composite materials for advanced manufacturing.*



**Niels Holten-Andersen,**  
**2022 Program Chair**  
(Lehigh University)



**Amy Peterson, 2022 Program**  
**co-Chair** (University of  
Massachusetts Lowell)



**Michael Bortner, 2022**  
**Program co-Chair** (Virginia  
Polytechnic Institute and  
State University)

## Bioadhesion Division

The Bioadhesion Division's 2021 meeting focused on a diverse group of sessions including Biomedical, Organismal and Bioinspired Adhesion, and Adhesion of Cells, Microorganisms and Viruses. The meeting, despite being virtually conducted, was well attended and successfully brought together academic and industrial participants from across the world. Key-note speakers included Dr. Gary Grove from Cyberderm Inc, Dr. Ronald Fearing from University of California, Berkeley and Dr. Vikram Deshpande from University of Cambridge. The division would like to thank all the session chairs for their contributions towards organizing and managing the sessions smoothly.



**Jayant Joshi, Chair,**  
(Hollister Incorporated)

The division's business meeting was held on the last day of the conference, where we thanked the outgoing chair, Professor Dan Sameoto (University of Alberta) for his exceptional service to the division, and welcomed Dr. Jayant Joshi (Hollister incorporated) and Dr. Mehdi Vahdati (ESPCI) as the 2022 Chair and Vice Chair of the division respectively.

The 2022 meeting for Bioadhesion Division will focus on some of the well-researched topics from the past including Organismal, Cell Virus, Underwater and Biomedical Adhesion. Some new and exciting topics are also proposed including sustainability, start-up mentoring panels and 3D printing. If you would like to be a part of this division or contribute to building its exciting future programs, please send an email to [jayant.joshi@hollister.com](mailto:jayant.joshi@hollister.com) or [mehdi.vahdati@icloud.com](mailto:mehdi.vahdati@icloud.com). We look forward to seeing everyone at San Diego in 2022!

### **Chair – Bioadhesion Division**

#### **Jayant Joshi, Hollister Incorporated**

*Jayant Joshi works as a Principal Scientist in the Technology Development team at Hollister Incorporated. He brings skin health, adhesion and formulation leadership with focus on developing biological models to better understand how Hollister's products interact with skin, developing novel adhesive based devices and providing scientific expertise to other functions. Previously, he worked in various scientific and leadership roles at GlaxoSmithKline (GSK) developing over the counter medicines, and at Euromed Inc developing medical devices. Jay holds a Bachelor's degree in Materials and Metallurgical Engineering from the Indian Institute of Technology and a Doctoral degree in Materials Science and Engineering from Rutgers State University.*

## Structural Adhesives Division

The Structural Adhesives Division had a well-attended, fully virtual, Annual Meeting in 2021 despite the difficulties surrounding the Covid-19 pandemic. The diverse nature of participation from academia, national labs and industry enabled the Division and the 2021 Annual Meeting to be informative and fruitful, while maintaining cognizance to the current trends of adhesion science. The Division hosted three independent focus sessions: Fracture Mechanics of Structural Adhesives and Composites; Adhesion and Fracture in Extreme Dynamic Conditions and Surface Preparation; and Ice, Insects, Marine, and other Contamination. In addition, the Division also co-hosted four joint sessions with the Soft Adhesives Division: Adhesion and Fracture of Complex Additively Manufactured Structures; Novel Tools and Methods for Characterization; Novel Chemistry; Transportation; and Formulation, Processing, and Selection. Overall, the sessions garnered a total of 48 talks and 4 keynote presentations where some of these sessions had over 100 attendees, a testament to the success of the meeting and organizers. The Division thanks its previous Chair, Michael Bortner (Virginia Tech) for his excellent leadership and a thanks to all the Session Chairs who were able to rapidly adapt to the online format of this meeting. We would also like to thank our attendees and our volunteers for their hard work, their engaging presence, and the constant feedback to improve the Structural Adhesives Division.



**Ajay Krishnamurthy, Chair**  
(National Institute of Standards and Technology)

At our annual division meeting, we elected our new Vice-Chair, Joseph Dennis (Army Research Lab) and Symposium Chair, Ngon Tran (Army Research Lab), who are both enthusiastically helping with the planning and organization of the Annual Meeting in 2022. Based on discussions during the Division meeting, we are continuing to strengthen our existing program portfolio and proposing focus topics that address sustainability and recyclability of structural adhesives, with a focus on bio-derived structural adhesives. Many of our proposed sessions, Addressing Adhesion Challenges in 3D Printing; Novel Tools and Methods for Characterization; Transportation; Formulation, Processing, and Surface Preparation for Adhesion; Sustainable and Bioderived Structural Adhesives, are constantly evolving cross-functional fields with support from our amazing cohorts in Soft and Bioadhesion Divisions. Please be sure to attend the Structural Adhesives Division meeting to voice your interests and shape our Division's future. We are looking forward to another exciting Annual Meeting in 2022 and thank you all for your support during the 2021 meeting!

### **Chair – Structural Adhesives Division**

#### **Ajay Krishnamurthy, National Institute of Standards and Technology**

*Ajay Krishnamurthy is a Guest Researcher with the Security Technologies Group, as part of the Materials Measurement Laboratory at the National Institute of Standards and Technology. He has a Ph.D. in Mechanical Engineering from Rensselaer Polytechnic Institute, under the guidance of Prof. Nikhil Koratkar. He has a background in carbon-based nanomaterials, especially in synthesis and application of graphene and carbon nanotubes in corrosion resistance coatings, hierarchical composites, and electrodes for battery applications. His current research focus includes evaluating structure-property relationships in nanomaterial-based polymer composites and developing positron annihilation lifetime spectroscopy measurements for understanding free-volume and nanoscale void structure in polymers and composites.*



## Soft Adhesives Division

Despite the difficulties posed by holding a conference during a pandemic, last year's online edition of the Adhesion Society Meeting was a resounding success, including many wonderful sessions held within the Soft Adhesives Division. The pivot to an online format allowed us to extend the conference to a full week, providing time to hold sessions on a wide range of topics, with speakers from all over the world. Along with our usual sessions such as Elasticity, Capillarity, and Wetting, Pressure Sensitive Adhesives and Viscoelasticity, Soft Tribology, and Fracture, we held a special session to commemorate the 50th anniversary of the publication of the Johnson, Kendall, and Roberts model of adhesion, and again hosted a session on the recently popular Soft Technologies session with a focus on robotics and devices. Thank you to everyone who took the time to participate in this new format. We would like to thank Amy Peterson for her hard work to put together a great program during this especially difficult time.

We were happy to also be able to hold the division meeting online last year with over 30 attendees. During this time, we could discuss our plans for this upcoming meeting and elect new leadership. Katharine Jensen was elected to be the next Chair of the Soft Adhesives Division and will serve this year as the Vice-Chair. Congratulations Kate!

This year, we aim to build upon these previous sessions by also hosting sessions on Gels, Elastomers, and Hybrids, as well as on Smart, Reversible, and Switchable adhesives. Aiming towards improved sustainability, focused research in these areas has been accelerating and we believe they will be increasingly important in the future. Given our one-year break of meeting in person, we are sincerely looking forward to meeting again next February in San Diego!

### Chair - Soft Adhesives Division

#### **Daniel King, Hokkaido University**

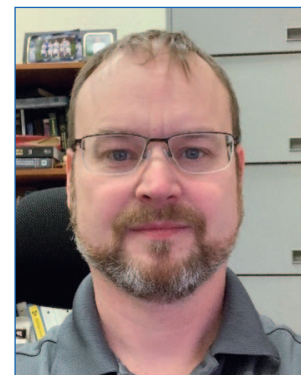
*Daniel R. King is an Assistant Professor at Hokkaido University, in Sapporo, Japan. He teaches in the Faculty of Advanced Life Science and performs research in the Laboratory of Transformational Soft Matter. His research interests involve the development and characterization of soft composite structures and applications.*



**Daniel King, Chair**  
(Hokkaido University)

## 44th Annual Meeting of the Adhesion Society Demographics/Attendance

The 44th Annual Meeting of the Adhesion Society was held virtually on February 22 – 25, 2021. Despite the challenges of the pandemic, the meeting was viewed as very successful by the participants. Overwhelmingly the membership survey comments indicated that the Pathable platform provided a pleasant conference experience. The Gather "town" was especially well-received by the conference attendees for the topical and networking sessions. The attendance numbers reflect our highly engaged community with 280 participants. The panel



**Aaron Forster, Secretary**  
(National Institute of Standards and Technology)

discussion on Equity & Sustainability in Science attracted 155 participants! The meeting skewed slightly towards academia (55%) than industry (38%) this year. Government researchers were down this year to about 4% of attendees. The virtual format increased access for young scientists within the community with approximately 33% indicating student or post-doctoral researcher status. Geographically, the majority of attendees were from the United States (73%), followed by Europe (16%), Canada (5%), and Asia (4%). One aspect of the virtual meeting was a loss in geographic diversity compared to past years. As the world begins to open up this year it will be interesting to see the impact on the 2022 meeting.

### Secretary

#### **Aaron Forster, National Institute of Standards and Technology**

*Aaron Forster is a staff scientist in the Material Measurement Laboratory at NIST in Gaithersburg, MD. His research revolves around the structure-property relationships to improve performance of protective materials such as high strength fibers, composites, and elastomers. The NIST program investigates interfacial mechanics to engineer toughness and damage tolerance in hierarchical nanocomposites. In addition, he utilizes full-field measurements to investigate the role of microstructure for energy dissipation in soft materials.*



**Adhesion Science and Technology**  
**SHORT COURSE**  
FEBRUARY 18-19, 2022 • SAN DIEGO, CALIFORNIA  
[www.AdhesionSociety.org](http://www.AdhesionSociety.org)

## From the Treasurer

At the start of my term as Treasurer after the 2020 Adhesion Society Meeting in Charleston, South Carolina, I was confident that the Adhesion Society was in a good place after Chuck Schuster's exceptional service in the role over the past eight years. COVID-19 came, impacting the way we work, the way we live and the way we meet. We could have been in a position where we would have needed to draw down the financial reserves of the Adhesion Society. However, with



**Chris Campbell, Treasurer**  
(3M)

careful planning and incredible execution by the Executive Committee, the 2021 Programming Committee and Malinda Armstrong, we were able to avoid cancellation fees for our 2021 venue in San Diego while exceeding the breakeven target for the 2021 virtual conference. As a result, the Adhesion Society was able to end the fiscal year with over \$30,000 more than we started our fiscal year with. We also completed our transition from National Bank in Blacksburg, Virginia to United Bank closer to our Home Office with the Adhesives and Sealants Council, as well as changing our credit card processor, which enables faster payments to our awardees and vendors with lower transaction and maintenance costs to the Society. I greatly appreciate Malinda Armstrong navigating us through this transition.

Looking forward, the Adhesion Society is in a strong position going into our 2021-2022 fiscal year. We have set costs for the conference based on a breakeven of 90% our historical attendance (excluding WCARP). As a result, we can provide access to the short course and conference for students and post-docs that covers their variable costs of attendance, while ensuring a reasonable cost of attendance for the other attendees for the conference. We appreciate the over \$15,000 in industrial donations that support the Society's awards, as well as sponsor student and post-doctoral attendance through the Peeble's Award and Diversity & Inclusion Scholarships. Please feel free to reach out if your company or organization would be interesting in sponsoring additional portions of the Society, as well as any questions you may have.

### Treasurer

#### **Chris Campbell, 3M**

*Chris Campbell is the Global Laboratory Leader for Optically Clear Adhesives in the Display Materials and Systems Division at 3M. He leads a team of product developers and application engineers for display bonding with pressure sensitive adhesives and liquid adhesives for consumer electronics and automotive applications. Chris and his family live in Burnsville, Minnesota with their two pugs, Buttercup and Rhubarb.*

## Annual Meeting Awards, Awardees and Events

The Adhesion Society has many prestigious awards that recognize the achievements of its members. The following is a brief synopsis of each award. Further details are available on the Society's web page along with lists of prior recipients. Many of the awards are sponsored. The Society is very grateful for the support of the sponsoring organizations and the member that make this possible. Nominations for the Award for Excellence in Adhesion Science and elevation to Fellow in the Society are sought out from the members of the Society. You are encouraged to review the requirements of these honors and submit a nomination.



**Eric Silverberg (Henkel)**

**Award for Excellence in Adhesion Science:** The Society's premier award for outstanding achievements in scientific research relating to adhesion. A symposium is held in honor of the award recipient at the start of the Annual Meeting. The criteria for winning this award include achievement of a scientific contribution that has significantly improved our understanding of the phenomenon of adhesion, or a contribution to the technology of adhesion or adhesives that has had significant impact on the adhesion/adhesives industry, and world-wide recognition of that achievement. This award is sponsored by 3M Corporation. Nominations for the next Award for Excellence in Adhesion Science will be accepted through December 31, 2021. **Guidelines for nominations can be found at** <https://www.adhesionsociety.org/award-of-excellence>. Nomination packages should be submitted to Jason Clapper (jclapper2@mmm.com)

**Student Awards:** Two student awards are given every year, the Peebles Award for Graduate Student Research in Adhesion Science and the Alan Gent Distinguished Student Paper Award. Both awards are sponsored by Henkel Corporation. Any student who is past their first year of graduate study, will be enrolled in graduate school at the time of the Annual Meeting, and has not received a student award previously is eligible to compete. The deadline for submitting the long abstracts and the remainder of the application package for Peebles candidates is significantly earlier than the standard deadline. **Award guidelines can be found at** <https://www.adhesionsociety.org/student-awards>. Winners will present their papers in the open Peebles Award Symposium, which serves as the competition for the Alan Gent Distinguished Student Paper Award. This award is judged by the Vice President and other members which typically includes Eric Silverberg from Henkel.

#### **Eric Silverberg, Henkel**

*Dr. Eric Silverberg earned his B.S. degree in chemistry from Northeastern University and his Ph.D. from the Pennsylvania State University. He has worked at Henkel for the last 23 years in the field of PSA's. Throughout his career, Eric has been active in trade groups such as the Pressure Sensitive Tape Council and ASC both as a presenter and as a member of the Technical Seminar Committee. In addition, Eric has held elected positions in The Adhesion Society including chair of the Soft Materials Division. Eric has over 10 granted patents and is a recent co-author of a chapter on PSA's in the Handbook of Adhesion Technology, 2nd Ed. (2018).*



## Diversity & Inclusivity Awards Sponsored by 3M

The 2021 Virtual Adhesion Society Annual Meeting marked the first year of Diversity and Inclusivity Awards sponsored by 3M to enable students and post-docs that are NSF underrepresented minorities in science and engineering to attend the Adhesion Science Short Course and Annual Meeting at no cost. We are happy to announce that we are continuing this for the 2022 meeting for students and post-docs that are NSF underrepresented minorities in science and adhesion, awarding up to ten registrations at no-cost for the Short Course and Annual Meeting for those that are selected (hotel, travel to/from the conference and other incidentals not included). **To be considered for this award, please apply at** <https://tinyurl.com/yeg7m2od> by December 1, 2021.

## 2021 Peebles Awards and the Alan Gent Distinguished Student Paper Award Sponsored by Henkel Corporation

This year we had seven recipients of the Peebles Award for Graduate Student Research in Adhesion Science, sponsored by Henkel. The selection of awardees was based on abstracts submitted as contributions to the Annual Meeting. These awardees received partial support to attend the meeting and present their papers at an oral symposium. These presentations formed the basis for choosing the winner of the Alan Gent Distinguished Student Paper Award. In addition to this support, registration fees for the short course and the meeting were waived. Congratulations to the recipients of the Peebles Award: Amir Darabi (Montana State University), Arit Das (Virginia Tech), Dohgyu Hwang (Virginia Tech), Preetika Karnal (Johns Hopkins), Amal Narayanan (University of Akron), Heejung Roh (MIT), and YuanYuan Wei (ESPCI)

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/student-awards/>

## Alan Gent Distinguished Student Paper Award

Congratulations to Amal Narayanan (University of Akron) for winning the 2021 Alan Gent Distinguished Paper Award presented at the Adhesion Society Meeting in February of this year. Preetika Karnal (Johns Hopkins University) won the runner-up prize. Amal is a student in Prof. Ali Dhinojwala's group and his paper was titled "Synthetic Liquid Phase Condensates as Underwater Adhesives." Preetika is in Prof. Joelle Frechette's group and her presentation was on "Fingering Instability During Debonding Between Two Soft Materials." Both were awarded a cash prize each in addition to the remuneration associated with being a Peebles Award winner. The winner's prize included a \$1000 cash prize and a plaque, recognizing the winner. The runner up received a \$500 cash prize and a plaque.

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/student-awards/>



## The 2021 Distinguished Paper Award

Congratulations to Dohgyu Hwang (Virginia Tech) for winning the 2021 Distinguished Paper Award for his paper titled "Programmable Kirigami-Inspired Adhesion" presented at the Annual Meeting of the Adhesion Society in February of this year.



Typically, one paper presented at the Annual Meeting of the Society is selected each year to receive this award. This award is sponsored by Henkel Corporation. The selection process is decided upon by the Vice President. Recently the award has been selected by the members attending the conference via ballot. The guidance for voting has been to vote early and vote often with only one vote per person per paper (oral presentation). **Award guidelines can be found at** <https://www.adhesionsociety.org/distinguished-paper-award>.

## The Best Poster Award

This award is presented to the best poster and poster presentation as judged during the Annual Meeting poster session. This award is sponsored by Avery Dennison and typically has a member from this company as the session chair and part of the judging panel. **Award guidelines can be found at** <https://www.adhesionsociety.org/best-poster-award>

## Early Career Award

Congratulations to Chelsea Davis for winning the 2022 Adhesion Society Early Career Scientist Award, sponsored by the ASC, for her contributions to adhesion science, including advances in new measurement methods and novel surface structures.



This award recognizes an early career scientist who has contributed in an outstanding, innovative, and interdisciplinary way to the progress of the field of adhesion science research and/or technology. The award is sponsored by the Adhesive and Sealant Council. The nominee shall not have exceeded a maximum number of five years in a permanent professional position in the year in which the award is presented. This award is typically coordinated by two of the previous past Presidents of the Society and voted on by the Executive Committee. **Guidelines for nominations can be found at** <https://www.adhesionsociety.org/early-career-award>.

## Robert L. Patrick Fellow of the Adhesion Society

Elevation of a member to Fellow of the Society is a formal recognition of outstanding members. The award also commemorates the lifelong contributions made to the Adhesion community by the late Robert L. Patrick in recognition of his extensive contributions to wetting, adhesion science, and the Society. The nominee must have provided outstanding contributions to the field of adhesion over a sustained period. Such contributions can be in the form of service to the adhesion community, broad and productive research and/or teaching, or other conspicuous achievements in the field of adhesion. Nominees shall have been members of the Adhesion Society for five years at the time of nomination. **Guidelines for nominations can be found at** <https://www.adhesionsociety.org/robert-l-patrick-fellowship>.

Prof. David Dillard of Virginia Tech has been the long serving coordinator of this award. He has recently stepped down and we thank him for his service. Any member of the Society may submit a nomination to the President by October 30th and are encouraged to do so.

## Women's Networking Event



The 7th Annual Women's Networking Event was held virtually on Wednesday, February 24, 2021 in the "Banquet Hall" in the GatherTown platform. The event was organized by Marleen Kamperman (University of Groningen) and Chelsea Davis (Purdue University). More than

40 women attended the event representing all sectors of the Adhesion Society's Membership. Students, faculty, postdocs, industrial members, and national lab employees were present. The event was informal, with attendees gathering around tables and networking.



# 45<sup>TH</sup> ANNUAL MEETING

## The Adhesion Society

### FEBRUARY 20-23, 2022

SAN DIEGO MISSION BAY RESORT - SAN DIEGO, CALIFORNIA



### JOIN YOUR PEERS IN SAN DIEGO, CALIFORNIA!

#### Annual Meeting (Technical Program) – February 20-23, 2022

The 43rd Annual Meeting is a four day event featuring a strong technical program of education sessions PLUS a two-day short course, poster session, exhibition, student award symposium and concurrent technical sessions. Our goal is to welcome 200 global adhesion professionals.

#### Exhibition – February 20-23, 2022

The vendor exhibition is integrated with the president's reception, coffee breaks and poster session, providing high visibility for the entire meeting to all attendees. The exhibition is designed to help establish and strengthen ties between all attendees and exhibitors.

#### Adhesion Science & Technology Short Course – February 18-19, 2022

This two day event provides an introduction and overview to a variety of critically important topics in the field of adhesion. Each subject is presented by a scientist who is a world leader in that area. This gives the attendees the opportunity to learn from and interact with scientists whose expertise provides a unique view into the history, science and relevance of their topic. For additional information and to register, visit [www.adhesionsociety.org](http://www.adhesionsociety.org) under events.

**Presentations (Abstracts) for the meeting are solicited for all areas of adhesion science and technology.**

For questions contact: Malinda Armstrong, Home Office Manager (301)986-9700 x1106 or [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org)

Hotel Accommodations:

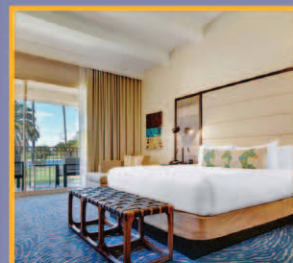
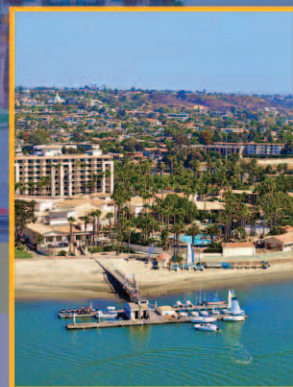
**San Diego Mission Bay Resort**  
1775 E Mission Bay Drive  
San Diego, CA 92109  
Phone: (619) 677-1161

## Register today and save!

Registration for the Annual Meeting includes attendance at the technical meeting, all receptions and breaks, meeting proceedings and **membership** to the Adhesion Society.



# WWW.ADHESSIONSOCIETY.ORG





## Call for Executive Committee Nominations!

**It's time to elect our next Executive Committee for the term 2022-2024.** In preparation for the upcoming election, the Nominating Committee has developed an initial list of nominated candidates for each of the Executive Committee. Each of the committee positions and current nominations can be found below. In addition, all members of the Adhesion Society are invited to nominate additional candidates. In order to nominate a person, the nomination must be submitted as a petition signed by at least 15 members and sent to Aaron Forster, Secretary at [aaron.forster@nist.gov](mailto:aaron.forster@nist.gov). This general nomination period will be open for 45 days beginning on the date of release of this newsletter. Once all nominations are received, we will distribute a final ballot of candidates for all positions, and subsequently call for votes. The description of the Executive Committee positions, as well as the election procedures, can be found in the Constitution of the Adhesion Society on the website. Thank you to everyone who is running to serve on the Executive Committee. The strength of the Society depends on the great membership and its willingness to serve in so many ways!

### VICE-PRESIDENT

#### **Edwin Chan**

Edwin Chan received a PhD in Polymer Science & Engineering from the University of Massachusetts Amherst in 2007. His PhD research was on the adhesion and mechanics of structured soft elastomers. Edwin is the currently the Project Leader of the Fundamentals of Polymer Mechanics Project in the Materials Science and Engineering Division at the National Institute of Standards and Technology (NIST). He leads a research team that studies the ballistic performance of nanomaterials, impact mitigation of soft architected materials, as well as adhesion and fracture behavior of polymer gels and soft networks. Edwin is the recipient of the 2019 American Chemical Society Polymeric Materials: Science and Engineering Division Cooperative Research Award for the collaborative research with DOW Chemical in desalination membrane technologies. He was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE) in 2016. He was selected to participate in the National Academy of Engineering (NAE) organized German American Frontiers of Engineering in Potsdam, Germany in 2015. He is recipient of the 2013 Adhesion Society Young Scientist Award.

#### **Nick Shephard**

Nick Shephard has been an active member of the Adhesion Society since his first introduction to the Annual Meeting by his research advisor Dr. Jim Wightman in 1994. Nick's first duty to the society was driving VT grad students to and from the Annual Meetings. Nick's participation includes papers, posters, session moderator, and co-chair of the Annual Meeting in 2019 and 2020. During our 2020 Annual Meeting, Nick facilitated a grant to offset travel expenses for Plenary Speaker Kim Felix who presented a compelling case for diversity in science. If elected, Nick would expand the Society's outreach in support of diversity and inclusion. Sustainable low carbon footprint adhesives are also topics for additional focus. Nick has been an industry scientist at Dow Chemical for over 30 years. His research interests focus on adhesion durability test methods and adhesive formulation strategies. He has 21 granted patents, 25 papers and contributed on dozens of adhesive product launches. He is currently a Research and Development Fellow in the Dow Performance Silicones Business focusing on new adhesion technology for e-vehicles.

### SECRETARY

#### **Aaron Forster**

Dr. Aaron Forster is a staff scientist at NIST with over 10 years experience in mechanics and failure of polymer coatings, nanocomposites, and elastomers. He has worked in the Security Technologies Group in the Materials Measurement Science Division at NIST since 2015. He recently served as the Structural Adhesives Division Chair in 2018-2019.

Dr. Forster is the current technical lead for the advanced composites project. This project focuses on the characterization and modeling of electrical, diffusion, and mechanical properties of hierarchical fiber reinforced nanocomposites. Hierarchical nanocomposites have shown the ability to meet the needs of the infrastructure and impact protection communities for multifunctional composites, but the long term properties are not established. Dr. Forster is also the co-lead for the suspensions and metamaterials for Impact Mitigation proj-

ect. This project focuses on developing novel multi-axial dynamic test methods specifically for soft materials. These mechanical methods are coupled to novel imaging techniques to support the development of constitutive models.

### TREASURER

#### **Chris Campbell**

Dr. Chris Campbell joined 3M in 2007, after obtaining his PhD in Chemical Engineering from Northwestern University. Chris started in the Corporate Research Materials Laboratory, working on structural adhesive technology development. In 2011, Chris joined the Electronics Markets Materials Division and subsequently the Display Materials and Systems Division as a Product Developer for eBonding liquid adhesives, and both liquid and film optically clear adhesives. Chris Campbell is currently the Global Laboratory Leader in the Display Materials and Systems Division, leading a team of product developers and application engineers that create optical bonding solutions in consumer electronics and automotive display applications. Chris is the inventor on 12 patents and recipient of two 3M Corporate Circle of Technical Excellence and Innovation Awards. Outside of the lab, Chris enjoys spending time traveling with his family—including an eight-week adventure of his entire family living in Seoul, South Korea—and as well as their two pugs, Buttercup and Rhubarb.

### EDITOR

#### **Andrew Croll**

Andrew B. Croll is an Associate Professor in the Department of Physics and part of the Materials and Nanotechnology Program at North Dakota State University. He received his B.Sc. in Physics from the University of Waterloo in Waterloo Canada, and, in 2009, his Ph.D. in Polymer Physics from McMaster University in Hamilton, Canada. Andrew's research focuses on fundamental details of the interplay between adhesion and complexity in soft condensed matter systems, and often highlights practical applications of novel polymeric systems. His work has often received recognition, most notably through an AFOSR YIP award. Andrew has participated in the Adhesion Society for many years, most recently serving on the executive committee as a "Member at Large".

#### **Michelle Seitz**

Michelle Seitz is a Senior Scientist at the DSM Materials Science Center in the Netherlands. Before joining DSM, Michelle obtained her BS in Materials Science from MIT, her PhD from Northwestern University under Ken Shull and Kathy Faber, and was a Postdoctoral Researcher at the University of Pennsylvania with Karen Winey. Her thesis work was awarded 3rd place in the 2011 Quadrant Awards and she won the Alan Gent Award in 2008. In 2011, She has worked on a variety of topics broadly related to structure-property relationships or adhesion of polymeric systems. Some examples include: polymer/polymer and polymer/metal integration, thermoplastic elastomers, silicone hydrogels for contact lenses, and touch and feel of polymeric materials. Michelle feels the Adhesion Society is an exceptional organization that brings academia and industry together in a strong community, fosters an inclusive atmosphere, and supports both young and established researchers. It is by far her favorite conference to attend. She served as co-Program Chair in 2020 & 2021 and as Member at Large from 2018-2020. She would be honored to continued supported the society, and can't wait to attend the 2022 meeting.

## **MEMBER-AT-LARGE**

### **Sarah Fischer**

Dr. Sarah Fischer is currently Head of the Department for Electronics for Non-destructive Testing Systems at Fraunhofer IZFP in Germany. She is a material scientist and engineer by training with a passion for interdisciplinary research. During her Master's thesis, she studied friction of bioinspired surfaces for biomedical applications at the Karp Laboratory in Boston and discovered her interest for research in the area of interfaces and adhesion. She was awarded the Alan Gent Award at the 2017 Adhesion Society Meeting and acted as a Chair of the Gordon Research Seminar on the Science of Adhesion while pursuing her PhD at Leibniz Institute for New Materials, Germany. In 2018, she joined Apple's polymer engineering team in California to work on industrial applications of adhesives with special focus on sustainability. After 1.5 years, she moved back to Germany to build her own research group at Fraunhofer IZFP to develop innovative characterization methods for complex materials at the interface of research and industry.

### **Marleen Kamperman**

Professor Dr. Marleen Kamperman is Professor in Polymer Science at the Zernike Institute for Advanced Materials at the University of Groningen. Her group is positioned at the interface of chemistry, biology and physics and is interested in the biologically inspired synthesis of polymeric materials with controlled adhesive and mechanical properties. Her team uses different polymerization techniques to develop novel (block co-) polyelectrolytes functionalized with adhesion and cohesion promoters and studies the material properties on different length scales. Kamperman was elected as a member of the Young Academy of the Royal Dutch Academy of Sciences in 2015 and is currently a member of the Dutch Chemistry Council. In 2018, she received the KNCV Van Marum Medal from the Royal Netherlands Chemical Society.

### **Bruce Lee**

Bruce Lee is a professor of biomedical engineering at Michigan Technological University. His research is focused on designing smart adhesive and bioadhesive materials based on mussel adhesive chemistry. He previously served as the Division Chair for the Bioadhesion Division as well as other roles within the Division.

### **Rong Long**

Rong Long is currently an Associate Professor in the Department of Mechanical Engineering at University of Colorado at Boulder. Prior to that he was an Assistant Professor at University of Colorado Boulder in 2014-2021, an Assistant Professor at University of Alberta in 2013-2014, a Research Associate at University of Colorado in 2012, and a Postdoctoral Associate at Cornell University in 2011. He received his PhD degree in Theoretical and Applied Mechanics from Cornell University in 2011 and BS degree in the same field from University of Science and Technology of China in 2006. His research interests include: continuum mechanics, fracture mechanics, contact mechanics, adhesion and friction of soft materials. He received a number of awards including the Young Adhesion Scientist Award from the Adhesion Society in 2014, the 3M non-Tenured Faculty Award in 2017 and the NSF CAREER Award in 2018.

### **Alex Nyarko**

Dr. Alex Nyarko is a Senior Research Specialist in Avery Dennison. He is passionate about sustainability and works in the Polymer, Adhesives and Coatings center of Excellence in Avery Dennison. He currently carries out research involving the design of sustainable adhesives which enable effective recycling of HDPE and PET bottles and related packaging. He has a MSc in Polymer Materials Science and Engineering from The University of Manchester in 2012, and a PhD in Polymer Science from The University of Akron in 2018, where he worked in Dr. Ali Dhinojwala's group with a focus on underwater bacterial adhesion. He leads the Black Employees Resource Group on site, and recently started a podcast which celebrates the work of African Scientists.

## **SOCIAL MEDIA/EDITOR**

### **Shantanu Ranade**

Current editor Dr. Shantanu Ranade will be handing over his social media and editorial duties to Frederic Restagno and Edwin Chan. We want to thank Shantanu for all his contributions as he has been an important contributor to our society as editor (2018-2019), co-editor (2017) and during the Society's Annual Meetings (2014-2019). His social media initiative for the society during his time as editor has started garnering interest and already has accumulated 166 followers from the field of adhesion science. Building on Shantanu's social media initiatives, Frederic and Edwin has started a Twitter account for the society. So far, the account has 348 followers. Please spread the word to your colleagues to follow us on LinkedIn (<https://www.linkedin.com/company/the-adhesion-society/>) and Twitter (@adhesion\_the) for important news and updates from the society!

### **Frederic Restagno**

Professor Frederic Restagno is a CNRS professor at the Université Paris-Saclay. His research group studies soft interfaces, in particular the mechanical the problems of wetting, adhesion and friction. He conducts experiments often with polymers, but not always. He is regularly involved in physics popularization programs.

### **Edwin Chan**

Dr. Edwin Chan joined NIST in 2008, after obtaining his PhD in Polymer science and Engineering from UMass Amherst where his research was focused on the adhesion of patterned polymer interfaces. At NIST, Edwin has been involved in several projects related to the adhesion and mechanics of polymer interfaces. Currently, he leads the Fundamentals of Polymer Mechanics Project in the Materials Science and Engineering Division where he is developing measurements to study the high-rate mechanical behavior of soft and architected materials related to impact mitigation.

**Adhesion Connection** ... an update from the society

510 King Street, Suite 418 • Alexandria, VA 22314  
Phone: (301) 986-9700, x1106 • Fax: (301) 986-9795  
Email: [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org)

Queries can be sent to Malinda Armstrong, the Adhesion Society Home Office Manager at [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org).



**The Adhesion Society**